

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	61	(virtual adj counter)	US-PGPUB; USPAT	OR	ON	2007/06/23 14:33
L2	37	(virtual adj time\$2) with (lag\$4 speed drift\$4)	US-PGPUB; USPAT	OR	ON	2007/06/23 15:22
L3	40	reduc\$ with migrat\$4 with (drift\$4 penal\$4)	US-PGPUB; USPAT	OR	ON	2007/06/23 15:22
L4	10	minimiz\$ with migrat\$4 with (drift\$4 penal\$4)	US-PGPUB; USPAT	OR	ON	2007/06/23 15:23
L5	5754	minimiz\$ with (drift\$4 penal\$4)	US-PGPUB; USPAT	OR	ON	2007/06/23 15:23
L6	2	(reduc\$4 minimiz\$) with (drift\$4 penal\$4) with ((virtual adj (system machine)) VM VMM)	US-PGPUB; USPAT	OR	ON	2007/06/23 15:24
L7	181	((Virtual adj machine) VM VMM) and 703/23-28.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/23 15:25
L8	159	((Virtual adj machine) VM VMM) and 703/13-22.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/23 15:25
L9	312	L7 L8	US-PGPUB; USPAT	OR	ON	2007/06/23 15:25
L10	8	("5103394"   "5666519"   "5678028"   "5737579"   "5761477"   "5815688"   "6047381").PN. OR ("6882968").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/06/23 15:48
L11	4	scala\$5 with (virtual adj (time\$2))	US-PGPUB; USPAT; USOCR	OR	OFF	2007/06/23 15:58
L12	38	scala\$5 with (virtual adj (machine))	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/23 15:58
L18	15	((apparent simulat\$4 virtual) adj (time clock)) with ((real wall hardware) adj (time clock)) with (lag\$4 drift\$4 behind "catch-up" delay\$4)	US-PGPUB; USPAT	OR	ON	2007/06/23 16:12
L20	182	(suspend\$4 halt\$4) with (virtual adj machine)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 16:23

## EAST Search History

L21	19	(US-20070033589-\$ or US-20060075402-\$ or US-20050204357-\$ or US-20060130059-\$ or US-20050027500-\$).did. or (US-6550015-\$ or US-6349388-\$ or US-4814975-\$ or US-5774479-\$ or US-5488713-\$ or US-5621912-\$ or US-5095427-\$ or US-4812967-\$ or US-6882968-\$ or US-7136800-\$ or US-7146305-\$).did. or (US-6550015-\$ or US-20020056076-\$ or EP-419723-\$).did.	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 16:54
L22	6	L21 and timers	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 16:59
L23	735	virtual adj time	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 17:01
L24	397	L23 and ((real hardware) adj time)	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 17:00
L25	397	L23 and ((wall real hardware) adj time)	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 17:00
L26	123	virtual adj time with (((wall real hardware) adj time))	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 17:02
L27	3	L26 and ((virtual adj (machine system)) VM VMM hypervisor)	US-PGPUB; USPAT; DERWENT	OR	OFF	2007/06/23 17:26

## EAST Search History

L28	47	US-5437033-\$.DID. OR US-4811276-\$.DID. OR US-5295265-\$.DID. OR US-5023771-\$.DID. OR US-5355470-\$.DID. OR US-6412035-\$.DID. OR US-4814975-\$.DID. OR US-6373846-\$.DID. OR US-5898855-\$.DID. OR US-6208661-\$.DID. OR US-6961806-\$.DID. OR US-6996748-\$.DID. OR US-7069413-\$.DID. OR US-7082598-\$.DID. OR US-7089377-\$.DID. OR US-7111086-\$.DID. OR US-7111145-\$.DID. OR US-7124327-\$.DID. OR US-7127548-\$.DID. OR US-7149843-\$.DID. OR US-7155558-\$.DID. OR US-7191440-\$.DID. OR US-20020172202-\$.DID. OR US-20060005200-\$.DID. OR US-20030217250-\$.DID. OR US-20040003323-\$.DID. OR US-20040003324-\$.DID. OR US-20040117539-\$.DID. OR US-20040123288-\$.DID. OR US-20040205203-\$.DID. OR US-20040268347-\$.DID. OR US-20050060702-\$.DID. OR US-20050060703-\$.DID. OR US-20050071840-\$.DID. OR US-20050080753-\$.DID. OR US-20050080934-\$.DID. OR US-20050080937-\$.DID. OR US-20050081199-\$.DID. OR US-20050132362-\$.DID. OR US-20050132365-\$.DID. OR US-20050216920-\$.DID. OR US-20050223377-\$.DID. OR US-20050289542-\$.DID. OR US-20060004554-\$.DID. OR US-20060004667-\$.DID. OR US-20060005003-\$.DID. OR US-20060005184-\$.DID.	US-PGPUB; USPAT	OR	OFF	2007/06/23 17:28
S1	56	virtual adj timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 16:19

## EAST Search History

S2	2	"09/247,876"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/19 14:56
S3	322	703/19.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/19 15:06
S4	596	718/1.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/19 15:08
S7	18	("3881156"   "4287562"   "4879733"   "4912734"   "4926319"   "4942522"   "4952367"   "5042005"   "5089955"   "5220661"   "5233573"   "5325341"   "5363499"   "5491815"   "5664167"   "5724399"   "5740451"   "5975739").PN. OR ("6550015"). URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/06/20 18:23
S8	510	((speed catch) adj up) accelerat\$4) with ((virtual adj machine) VMM VM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 16:56
S9	63	S8 and timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 14:14

## EAST Search History

S10	40	(US-20020129338-\$ or US-20020056076-\$).did. or (US-6108309-\$ or US-6522985-\$ or US-5247653-\$ or US-5550760-\$ or US-6117181-\$ or US-6725188-\$ or US-6173249-\$ or US-6134516-\$ or US-5287461-\$ or US-6792460-\$ or US-6934755-\$ or US-6240529-\$ or US-5784552-\$ or US-5937179-\$ or US-6618839-\$ or US-6901581-\$ or US-5621912-\$ or US-6795966-\$). did.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 14:54
S11	510	((speed catch) adj up) accelerat\$4) with ((virtual adj machine) VMM VM)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 17:09
S12	73	S11 and interrupt	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 15:07
S13	9	S10 and (VM VMM (virtual adj machine))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 14:54
S14	2	(catch adj up) with virtual with (timer timing)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 15:08
S15	2	(catch adj up) same (virtual with (timer timing))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 15:08

## EAST Search History

S16	18	(catch adj up) and (virtual with (timer timming))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 15:10
S17	598	718/1.ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 15:11
S18	71	S17 and timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/21 15:12
S20	23	US-20010021969-\$.DID. OR US-20010027511-\$.DID. OR US-20010027527-\$.DID. OR US-20010037450-\$.DID. OR US-20020007456-\$.DID. OR US-20020023032-\$.DID. OR US-20020147916-\$.DID. OR US-20020166061-\$.DID. OR US-20020169717-\$.DID. OR US-20030018892-\$.DID. OR US-20030074548-\$.DID. OR US-20030115453-\$.DID. OR US-20030126442-\$.DID. OR US-20030126453-\$.DID. OR US-20030159056-\$.DID. OR US-20030188179-\$.DID. OR US-20030196085-\$.DID. OR US-20040117539-\$.DID. OR US-3699532-\$.DID. OR US-3996449-\$.DID. OR US-4037214-\$.DID. OR US-4162536-\$.DID. OR US-4207609-\$.DID.	US-PGPUB; USPAT	OR	OFF	2007/06/21 17:00

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S21	41	US-4276594-\$.DID. OR US-4278837-\$.DID. OR US-4307447-\$.DID. OR US-4319233-\$.DID. OR US-4319323-\$.DID. OR US-4347565-\$.DID. OR US-4366537-\$.DID. OR US-4403283-\$.DID. OR US-4419724-\$.DID. OR US-4430709-\$.DID. OR US-4521852-\$.DID. OR US-4759064-\$.DID. OR US-4795893-\$.DID. OR US-4802084-\$.DID. OR US-4825052-\$.DID. OR US-4907270-\$.DID. OR US-4907272-\$.DID. OR US-4910774-\$.DID. OR US-4975836-\$.DID. OR US-5007082-\$.DID. OR US-5022077-\$.DID. OR US-5075842-\$.DID. OR US-5079737-\$.DID. OR US-5187802-\$.DID. OR US-5230069-\$.DID. OR US-5237616-\$.DID. OR US-5255379-\$.DID. OR US-5287363-\$.DID. OR US-5293424-\$.DID. OR US-5295251-\$.DID. OR US-5317705-\$.DID. OR US-5319760-\$.DID. OR US-5361375-\$.DID. OR US-5386552-\$.DID. OR US-5421006-\$.DID. OR US-5434999-\$.DID. OR US-5437033-\$.DID. OR US-5442645-\$.DID. OR US-5455909-\$.DID. OR US-5459867-\$.DID. OR US-5459869-\$.DID.	US-PGPUB; USPAT	OR	OFF	2007/06/21 17:01
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## EAST Search History

S22	84	US-5473692-\$.DID. OR US-5479509-\$.DID. OR US-5504922-\$.DID. OR US-5506975-\$.DID. OR US-5511217-\$.DID. OR US-5522075-\$.DID. OR US-5528231-\$.DID. OR US-5533126-\$.DID. OR US-5555385-\$.DID. OR US-5555414-\$.DID. OR US-5560013-\$.DID. OR US-5564040-\$.DID. OR US-5566323-\$.DID. OR US-5568552-\$.DID. OR US-5574936-\$.DID. OR US-5582717-\$.DID. OR US-5604805-\$.DID. OR US-5606617-\$.DID. OR US-5615263-\$.DID. OR US-5628022-\$.DID. OR US-5633929-\$.DID. OR US-5657445-\$.DID. OR US-5668971-\$.DID. OR US-5684948-\$.DID. OR US-5706469-\$.DID. OR US-5717903-\$.DID. OR US-5720609-\$.DID. OR US-5721222-\$.DID. OR US-5729760-\$.DID. OR US-5737604-\$.DID. OR US-5737760-\$.DID. OR US-5740178-\$.DID. OR US-5752046-\$.DID. OR US-5757919-\$.DID. OR US-5764969-\$.DID. OR US-5796835-\$.DID. OR US-5796845-\$.DID. OR US-5805712-\$.DID. OR US-5809546-\$.DID. OR US-5825875-\$.DID. OR US-5825880-\$.DID. OR US-5835594-\$.DID. OR US-5852717-\$.DID. OR US-5854913-\$.DID. OR US-5867577-\$.DID. OR US-5872994-\$.DID. OR US-5890189-\$.DID. OR US-5900606-\$.DID. OR US-5901225-\$.DID. OR US-5903752-\$.DID. OR US-5919257-\$.DID. OR US-5935242-\$.DID. OR US-5935247-\$.DID. OR US-5937063-\$.DID. OR US-5944821-\$.DID. OR US-5953502-\$.DID. OR	US-PGPUB; USPAT	OR	OFF	2007/06/21 17:03
6/23/2007 5:42:49 PM C:\Documents and Settings\asa\My Documents\EAST\Workspaces\10782092.wsp						



## EAST Search History

S24	51	US-6192455-\$.DID. OR US-6199152-\$.DID. OR US-6205550-\$.DID. OR US-6212635-\$.DID. OR US-6222923-\$.DID. OR US-6249872-\$.DID. OR US-6252650-\$.DID. OR US-6269392-\$.DID. OR US-6272533-\$.DID. OR US-6272637-\$.DID. OR US-6275933-\$.DID. OR US-6282650-\$.DID. OR US-6282651-\$.DID. OR US-6282657-\$.DID. OR US-6292874-\$.DID. OR US-6301646-\$.DID. OR US-6308270-\$.DID. OR US-6314409-\$.DID. OR US-6321314-\$.DID. OR US-6327652-\$.DID. OR US-6330670-\$.DID. OR US-6339815-\$.DID. OR US-6339816-\$.DID. OR US-6357004-\$.DID. OR US-6363485-\$.DID. OR US-6374286-\$.DID. OR US-6374317-\$.DID. OR US-6378068-\$.DID. OR US-6378072-\$.DID. OR US-6389537-\$.DID. OR US-6397242-\$.DID. OR US-6397379-\$.DID. OR US-6412035-\$.DID. OR US-6421702-\$.DID. OR US-6435416-\$.DID. OR US-6445797-\$.DID. OR US-6463535-\$.DID. OR US-6463537-\$.DID. OR US-6499123-\$.DID. OR US-6505279-\$.DID. OR US-6507904-\$.DID. OR US-6529909-\$.DID. OR US-6535988-\$.DID. or "6557104". pn. or US-6560627-\$.DID. OR US-6609199-\$.DID. OR US-6615278-\$.DID. OR US-6633963-\$.DID. OR US-6633981-\$.DID. OR US-6651171-\$.DID. OR US-6678825-\$.DID.	US-PGPUB; USPAT	OR	OFF	2007/06/21 17:04
S25	63	(S20 or S21 or S22 or S24) and (timer VMM VM)	US-PGPUB; USPAT	OR	OFF	2007/06/21 17:08
S26	1	virtual with timer with latenc\$4	US-PGPUB; USPAT	OR	OFF	2007/06/21 17:10

## EAST Search History

S27	4	((increas\$4 decreas\$4) with ((virtual adj machine) VMM VM) with latenc\$4	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/21 17:11
S28	211	((virtual adj machine) VMM VM) with timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/22 13:56
S29	477	((virtual adj (system machine)) VMM VM) with ((catch adj up) accelerat\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/22 14:21
S30	852	((virtual adj (system machine)) VMM VM) with (frequenc\$4)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/22 14:53
S31	62	S30 and timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/06/22 14:24
S32	254	S30 and (index\$2 counter timer)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/22 14:24
S33	70	((virtual adj (system machine)) VMM VM) with (interrupt event) with (queue)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/22 15:16

## EAST Search History

S34	6953	"718".clas.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/22 15:11
S35	1198	S34 and timer	US-PGPUB; USPAT	OR	ON	2007/06/22 15:12
S36	514	718/106.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/22 15:12
S37	87	S36 and timer	US-PGPUB; USPAT	OR	ON	2007/06/22 15:12
S38	1481	((virtual adj (system machine)) VMM VM) with (restart resume start)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/22 15:18
S39	196	S38 and S34	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/22 15:22
S40	579	"703".clas. and (virtual adj2 (computer system machine))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/22 22:13
S41	37	((virtual adj machine) VMM VM) with drift	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 10:54
S42	11	(timothy with Mann).in.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 12:16

## EAST Search History

S43	44	vmware.as.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 12:21
S44	4	vmware.as. and timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 12:23
S45	13	(virtual adj (system machine))with (event adj queue\$5)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2007/06/23 12:41
S49	181	((Virtual adj machine) VM VMM) and 703/23-28.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/23 12:42
S50	159	((Virtual adj machine) VM VMM) and 703/13-22.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/23 15:25
S51	20	(Virtual adj (system event timer)) and 703/23-28.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/23 12:43
S52	30	(Virtual adj (system event timer)) and 703/13-22.ccls.	US-PGPUB; USPAT	OR	ON	2007/06/23 12:43

VMTN

VMware Technology Network


















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Title	Publisher	Rating	Revised ▲
Virtualizing I/O Devices on VMware Workstation's Hosted Virtual Machine Monitor	VMware		06/24/2001
Memory Resource Management in VMware ESX Server	VMware		12/08/2002
NIC Teaming IEEE 802.3ad	VMware		08/11/2003
An Analysis of Disk Performance in VMware ESX Server Virtual Machines	VMware		10/26/2003
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Hyper-Threading Support in ESX Server 2.1	VMware		04/13/2004
Configuring and Installing HP Blade Servers	VMware		04/28/2004
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	(( (mann<in>au) <and>( virtual machine<in>metadata ) )	0

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#24	((mann t.<in>au))	22
#25	((dependent<in>metadata) <and> (virtual machine<in>metadata))	29
#26	((virtual machine<in>metadata) <and> (queue* interrupt*<in>metadata))	0
#27	((queue* interrupt*<in>metadata))	0
#28	((queue* interrupt<in>metadata))	0
#29	((interrupt queue*<in>metadata))	0
#30	((interrupt queue<in>metadata))	0
#31	((interrupt <in>metadata))	2076
#32	((((interrupt <in>metadata)))<AND>(virtual machine<in>metadata))	13





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#3	(( virtual machine<in>metadata ) <and> ( suspend<in>metadata ) )<and> ( resume<in>metadata )	3
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**1 Operating system principles**

Per Brinch Hansen  
January 1973 Book  
Publisher: Prentice-Hall, Inc.

Full text available: [204,417,118](#) [204,417,119](#)

Additional Information: [10.1145/1000000.1000000](#), [1000000](#), [1000000](#), [1000000](#), [1000000](#), [1000000](#)

**From the Preface**

**MAIN GOAL**

This book tries to give students of computer science and professional programmers a general understanding of operating systems--the programs that enable people to share computers efficiently.

To make the sharing of a computer tolerable, an operating system must enforce certain rules of behavior on all its users. One would therefore expect the designers of operating systems to do their utmost to make them as ...

**2 Real-time convergence of Ada and Java™**

Ben Brosgol, Brian Dobbing  
September 2001 ACM SIGAda Ada Letters , Proceedings of the 2001 annual ACM SIGAda international conference on Ada SIGAda '01, Volume XXI Issue 4

Publisher: ACM Press

Full text available: [204,417,120](#) [204,417,121](#)

Additional Information: [10.1145/1000000.1000000](#), [1000000](#), [1000000](#), [1000000](#), [1000000](#), [1000000](#)

**Keywords:** Ada, Java, Real-Time, asynchrony, garbage collection, scheduling, threads

**3 Mobile and distributed systems: Enabling Java mobile computing on the Java 2 platform**

Research virtual machine  
Giuseppe Cabri, Letizia Leonardi, Raffaele Quitadamo  
August 2006 Proceedings of the 4th international symposium on Principles and practice of programming in Java PPPJ '06

Publisher: ACM Press

Full text available: [204,417,122](#) [204,417,123](#)

Additional Information: [10.1145/1000000.1000000](#), [1000000](#), [1000000](#), [1000000](#), [1000000](#), [1000000](#)

Today's complex applications must face the distribution of data and code among different network nodes. Java is a wide-spread language that allows developers to build complex software, even distributed, but it cannot handle the migration of computations (i.e. threads), due to intrinsic limitations of many traditional JVMs. After analyzing the approaches in literature, this paper presents our research work on the IBM Jikes Research Virtual Machine: exploring some of its innovative VM techniques, ...

**Keywords:** Java virtual machine, code mobility, distributed applications, thread persistence

4 **Vsched: Mixing Batch And Interactive Virtual Machines Using Periodic Real-time Scheduling**  
Bin Un, Peter A. Dinda

November 2005 **Proceedings of the 2005 ACM/IEEE conference on Supercomputing SC '05**

Publisher: IEEE Computer Society

Full text available: [DOI: 10.1109/SC.2005.1838223](#) Additional Information: [DOI: 10.1109/SC.2005.1838223](#)

We are developing Virtuso, a system for distributed computing using virtual machines (VMs). Virtuso must be able to mix batch and interactive VMs on the same physical hardware, while satisfying constraint on re-sponsiveness and compute rates for each workload. Vsched is the component of virtoso that provides this capability. Vsched is an entirely user-level tool that interacts with the stock Linux kernel running below any type-11 virtual machine monitor to schedule VMs (indeed, any process) ...

5 **A Specification for an efficient multi-threaded scheme system**  
Suresh Jagannathan, Jim Philbin

January 1992 **ACM SIGPLAN Usip Pointers , Proceedings of the 1992 ACM conference on LSP and functional programming LFP '92**, Volume V Issue 1

Publisher: ACM Press

Full text available: [DOI: 10.1145/1383823](#) Additional Information: [DOI: 10.1145/1383823](#)

We have built a parallel dialect of Scheme called STING that differs from its contemporaries in a number of important respects. STING is intended to be used as an operating system substrate for modern parallel programming languages. The basic concurrency management objects in STING are first-class lightweight threads of control and virtual processors (VPs). Unlike high-level concurrency structures, STING threads and VPs are not encumbered by complex synchronization protocols. ...

6 **The Atonos transactional programming language**  
Brian D. Carstroom, Austen McDonald, Hassan Chafi, JaeWoong Chung, Chi Cao Minh, Christos Koyrakis, Kunle Olukotun

June 2006 **ACM SIGPLAN Notices , Proceedings of the 2006 ACM SIGPLAN conference on Programming language design and implementation PLDI '06**, Volume 41 Issue 6

Publisher: ACM Press

Full text available: [DOI: 10.1145/1162223](#) Additional Information: [DOI: 10.1145/1162223](#)

Atonos is the first programming language with atomic transactions, strong atomicity, and a scalable multiprocessor implementation. Atonos is derived from Java, but replaces its synchronization and conditional waiting constructs with simpler transactional alternatives. The Atonos watch statement allows programmers to specify fine-grained watch sets used with the Atonos retry conditional waiting statement for efficient transactional conflict-driven wakeup even in transactional memory systems with ...

**Keywords:** conditional synchronization, Java, multiprocessor architecture, transactional memory

7 **Real-time dynamics in collaborative systems**



- 15 [Scalability, performance, and real-time friendly virtual machines: leveraging a feedback control model for application adaptation](#)  
Yiting Zhang, Azer Bestavros, Mina Guruguda, Ibrahim Motta, Richard West  
June 2005 *Proceedings of the 1st ACM/USENIX international conference on virtual execution environments VEE '05*  
Publisher: ACM Press

Full text available: [PDF](#) Additional information: [PDF](#) [HTML](#) [XML](#) [BIBTEX](#) [HTML](#) [BIBTEX](#)

With the increased use of "Virtual Machines" (VMs) as vehicles that isolate applications running on the same host, it is necessary to devise techniques that enable multiple VMs to share underlying resources both fairly and efficiently. To that end, one common approach is to deploy complex resource management techniques in the hosting infrastructure. Alternatively, in this paper, we advocate the use of self-adaptation in the VMs themselves based on feedback about resource usage and availability. Co ...

**Keywords:** feedback control, friendly virtual machines, resource management

- 16 [Applications: Aspect-oriented application-level scheduling for Java servers](#)  
Kenichi Kourai, Hideaki Hibino, Shigeru Chiba  
March 2007 *Proceedings of the 6th international conference on Aspect-oriented software development AOSD '07*  
Publisher: ACM Press

Full text available: [PDF](#) Additional information: [PDF](#) [HTML](#) [XML](#) [BIBTEX](#) [HTML](#) [BIBTEX](#)

Achieving sufficient execution performance is a challenging goal of software development. Unfortunately, violating performance requirements is often revealed at a late stage of the development. Fixing a performance problem at such a late stage is difficult in terms of cost and time. To solve this problem, this paper presents QoSWeaver, which provides aspect-oriented application-level scheduling. QoSWeaver weaves scheduling code written in an aspect into application code. The scheduling code ...

**Keywords:** QoS, case study, performance tuning, pointcut generator

- 17 [An implementation scheme for a virtual machine monitor in the realworld on user.](#)  
B. D. Shiver, J. W. Anderson, L. J. Vaguepack, D. M. Hyams, R. A. Bombet  
October 1976 *Proceedings of the annual conference ACM 76*  
Publisher: ACM Press

Full text available: [PDF](#) Additional information: [PDF](#) [HTML](#) [XML](#) [BIBTEX](#) [HTML](#) [BIBTEX](#)

A virtual machine monitor allows several different operating systems to run concurrently on the same machine. This paper presents the description of a virtual machine monitor and its support structure which can be implemented on a microprogrammable minicomputer or a distributed network of such machines. In our approach, all storage, transformational, input, and output resources of the system are accessed through a mapping mechanism. The design and implementation methodology for an actual re ...

- 18 [Compiling and program transformations: Schedulable persistence system for Java.](#)  
Okeene Goh, Yann-Hang Lee, Ziad Kaakani  
October 2006 *Proceedings of the 6th ACM & IEEE International conference on Embedded software EMSOFT '06*  
Publisher: ACM Press

Full text available: [PDF](#) Additional information: [PDF](#) [HTML](#) [XML](#) [BIBTEX](#) [HTML](#) [BIBTEX](#)

Persistence in applications saves a computation state that can be used to facilitate system recovery upon failures. As we begin to adopt virtual execution environments (VMEs) for mission-critical real-time embedded applications, persistence service will become an essential part of VME to ensure high availability of the systems. In this paper, we focus in a schedulable persistence system in VMEs and show a prototype persistence system

constructed on CLI's open source platform, MONO. By employing obj ...

**Keywords:** CLI, checkpoint/recovery, real-time applications, schedulable persistence system, virtual machine

- 19 [Real-time persistence: The reactive programming approach on top of Java/J2ME](#)  
Jean-Ferdly Susni  
October 2006 *Proceedings of the 4th international workshop on Java technologies for real-time and embedded systems JTRTS '06*  
Publisher: ACM Press

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Concurrent design facilitate the programming of interactive applications such as games or simulations of virtual worlds. Java has popularized the use of multithreaded programming to address multiple concurrency issues in applications. However, threads are not always fine-grained enough to be successfully applied in all circumstances, especially when it comes to programming on customer electronic devices such as mobile phone or personal digital assistant. The lack of resources (memory, processing) ...

**Keywords:** J2ME, concurrent programming, embedded systems, Java, multi-dock reactive systems, reactive programming approach, synchronous/asynchronous interaction

- 20 [The impact of operating system scheduling policies and synchronization methods of performance of parallel applications](#)  
Anoop Gupta, Andrew Tucker, Shigeru Urushibara  
April 1991 *ACM SIGMETRICS Performance Evaluation Review, Proceedings of the 1991 ACM SIGMETRICS conference on Measurement and modeling of computer systems SIGMETRICS '91, Volume 19 Issue 1*  
Publisher: ACM Press

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Shared-memory multiprocessors are frequently used as compute servers with multiple parallel applications executing at the same time. In such environments, the efficiency of a parallel application can be significantly affected by the operating system scheduling policy. In this paper, we use detailed simulation studies to evaluate the performance of several different scheduling strategies. These include regular priority scheduling, co-scheduling or gang scheduling, process control with processor pa ...

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automatically migrate and replicate data at the main-memory level in cache-line sized chunks. This paper compares the performance of these two classes ...

- 9 **Enabling low-power, multi-core, through temperature compensated timer**  
Joakim Arvidsson, Eric Park, Philip Lewis  
October 2006 **Proceedings of the 4th International Conference on Embedded Networked Sensor Systems Sensys '06**  
Publisher: ACM Press  
Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

Additional Information: <http://www.acm.org/publications/conf/sensys>

**Keywords:** clock drift, sensor networks, temperature compensation, time synchronization

- 10 **The impact of operating system scheduling policies and synchronization methods of parallel applications**  
Anoop Gupta, Andrew Tucker, Shigeru Urushibara  
April 1991 **ACM SIGMETRICS Performance Evaluation Review, Proceedings of the 1991 ACM SIGMETRICS conference on Measurement and modeling of computer systems SIGMETRICS '91**, Volume 19 Issue 1  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

Shared-memory multiprocessors are frequently used as compute servers with multiple parallel applications executing at the same time. In such environments, the efficiency of a parallel application can be significantly affected by the operating system scheduling policy. In this paper, we use detailed simulation studies to evaluate the performance of several different scheduling strategies. These include regular priority scheduling, co-scheduling or gang scheduling, process control with processor pa ...

- 11 **Virtualization and operating systems: From technology to application**  
Hiroshi Yamada, Kenji Kono  
June 2007 **Proceedings of the 3rd International Conference on Virtual Execution Environments VEE '07**  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

Integrating new resource management policies into operating systems (OSes) is an ongoing process. Despite innovative policy proposals being developed, it is quite difficult to deploy a new one widely because it is difficult, costly and often impractical endeavor to modify existing OSes to integrate a new policy. To address this problem, we explore the possibility of using virtual machine technology to incorporate a new policy into an existing OS without the need to make any changes to it. Th ...

**Keywords:** interference, resource management, virtual machine

- 12 **Design and implementation of a framework for efficient and programmable sensor networks**  
Athanasios Boulis, Chih-Chieh Han, Mani B. Srivastava  
May 2003 **Proceedings of the 1st International Conference on Mobile Systems, Applications and Services Mobisys '03**  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

Wireless ad hoc sensor networks have emerged as one of the key growth areas for wireless networking and computing technologies. So far these networks/systems have been designed with static and custom architectures for specific tasks, thus providing

inflexible operation and interaction capabilities. Our vision is to create sensor networks that are open to multiple transient users with dynamic needs. Working towards this vision, we propose a framework to define and support lightweight and mobile c ...

- 13 **Virtual machines: Enabling intrusion analysis through virtual-machine logging and replay**  
George W. Dunlap, Samuel T. King, Sukru Cinar, Muraza A. Basrai, Peter M. Chen  
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue 51  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

Current system loggers have two problems: they depend on the integrity of the operating system being logged, and they do not save sufficient information to replay and analyze attacks that include any non-deterministic events. ReVirt removes the dependency on the target operating system by moving it into a virtual machine and logging below the virtual machine. This allows ReVirt to replay the system's execution before, during, and after an intruder compromises the system, even if the intruder rep ...

- 14 **Virtual machines: Scale and performance in the Denial Isolation Kernel**  
Andrew Whitaker, Marianne Shaw, Steven D. Gribble  
December 2002 **ACM SIGOPS Operating Systems Review**, Volume 36 Issue 51  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

This paper describes the Denial Isolation Kernel, an operating system architecture that safely multiplexes a large number of untrusted Internet services on shared hardware. Denail's goal is to allow new Internet services to be "pushed" into third party infrastructure, relieving Internet service authors from the burden of acquiring and maintaining physical infrastructure. Our Isolation Kernel exposes a virtual machine abstraction, but unlike conventional virtual machine monitors, Denail does not ...

- 15 **PL/I program efficiency**  
Michael McNeil, William Tracz  
June 1980 **ACM SIGPLAN Notices**, Volume 15 Issue 6  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

All PL/I Programmers should be aware of and genuinely concerned about PL/I Program efficiency. This paper addresses the following question: "How do you write a PL/I program which the PL/I Compiler will reduce to the smallest and fastest executing machine language module?" The real world payoffs of knowing how the PL/I optimizing Compiler handles different syntactical representations of similar semantic relationships with respect to code generation and storage allocation can increase program runtime ...

- 16 **Xen and the art of virtualization**  
Paul Barham, Boris Dragovic, Keir Fraser, Steven Hand, Tim Harris, Alex Ho, Rolf Neugebauer, Ian Pratt, Andrew Warfield  
October 2003 **ACM SIGOPS Operating Systems Review, Proceedings of the nineteenth ACM symposium on Operating systems principles SOSP '03**, Volume 37 Issue 5  
Publisher: ACM Press

Full text available: <http://portal.acm.org/portal.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

Numerous systems have been designed which use virtualization to subdivide the ample resources of a modern computer. Some require specialized hardware, or cannot support commodity operating systems. Some target 100% binary compatibility at the expense of performance. Others sacrifice security or functionality for speed. Few offer resource isolation or performance guarantees, most provide only best-effort provisioning, risking denial of service. This paper presents Xen, an x86 virtual machine monit ...

**Keywords:** hypervisors, paravirtualization, virtual machine monitors

- 17 **Process synchronance on the ERLIME family of computers**  
Edward A. Feustel  
March 1984 ACM SIGARCH Computer Architecture News, Volume 12 Issue 3

A high speed mechanism for process exchange is essential in a time sharing system based on the use of many processes. The automated process exchange mechanism on the Model P400 and the 50 Series of PLRME machines is described. Typical timing for operations, using the process exchange mechanism on the P750 is given. Its use in PRIMOS is explained and validated.

- 18 **Modeling simulation: Modeling virtual object behavior within virtual environments**  
Gun A. Lee, Gerard Jounghyun Kim, Chan-Mo Park  
November 2002. Proceedings of the ACM symposium on Virtual reality software and technology 'VRST' 02  
Publisher: ACM Press

process of wearing many devices, there exist both temporal and spatial gaps between the implementation and evaluation stage, and this usually causes delay and inefficiency in the development process. In order to overcome this gap, there have been several approaches: to constructing or modeling the physical aspects of the ...





**Keywords:** 3D interaction, interactive behavior modeling, programming by demonstration, virtual environment, virtual object

- 19 **A. virtual machine emulator for performance analysis**  
M. D. Canon, D. H. Fritz, J. H. Howard, T. D. Howell, M. F. Mitoma, J. Rodriguez-Rosel  
February 1980 *Communications of the ACM*, Volume 23 Issue 2
- Publisher: ACM Press**
- Full text available at:** <https://doi.org/10.1145/582555.581201> **Additional information:** <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1.1.1.1.1.1.1>

**Keywords:** computer system simulation, performance evaluation, virtual machines

- 20 **The time problem**  
 Russell M. Clapp, Trevor Mudge  
 January 1990 ACM SIGAda Ada Letters, Proceedings of the working group on Ada  
 performance issues 1990, Volume X Issue 3  
 Publisher: ACM Press  
 Full text available: <https://doi.org/10.1145/102521.102521> Additional Information: <https://doi.org/10.1145/102521.102521>

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Full text available: [10.1145/11881](#) Additional Information: [10.1145/11881](#), [10.1145/11882](#), [10.1145/11883](#)

A parallel computer architecture is proposed that is based on an optimistic style of execution. Specifically, the *Virtual Time Machine* (VTM) detects violations of data dependence constraints at runtime, and automatically recovers from them. In order to efficiently implement this mechanism, a sophisticated, two-dimensional memory system is proposed that is addressed using both a spatial and a temporal coordinate. Initially targeted for discrete event simulation applications, the Ion ...

### 9 Source level debugging of automatically parallelized code

Robert Conr  
December 1991 **ACM SIGPLAN Notices, Proceedings of the 1991 ACM/ONR workshop on Parallel and distributed debugging PAOD '91**, Volume 26 Issue 12  
Publisher: ACM Press  
Full text available: [10.1145/11881](#) Additional Information: [10.1145/11881](#), [10.1145/11882](#), [10.1145/11883](#)

### 10 Bounds and approximations for self-inflating distributed simulation without lookahead

Robert E. Feldeman, Leonard Kleinrock  
October 1991 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**, Volume 1 Issue 4  
Publisher: ACM Press  
Full text available: [10.1145/11881](#) Additional Information: [10.1145/11881](#), [10.1145/11882](#), [10.1145/11883](#)

We provide upper and lower bounds and an approximation for speedup of an optimistic self-inflating distributed simulation using a very simple model. We assume an arbitrary number of processors and a uniform connection topology. By showing that the lower bound increases essentially linearly with  $P$ , the number of processors, we find that the optimistic approach scales well as  $P$  increases. The model tracks the progress of Global Virtual Time (GVT) and eliminates ...

**Keywords:** Global Virtual Time, Time Warp, bounds, discrete-event simulation, distributed processing, optimal, optimistic simulation, parallel processing, performance analysis, speedup, virtual time

### 11 Time warp operating system

D. Jefferson, B. Beckman, F. Wieland, L. Blume, M. DiIorio  
November 1987 **ACM SIGOPS Operating Systems Review, Proceedings of the eleventh ACM Symposium on Operating systems principles SOSR '87**, Volume 21 Issue 5  
Publisher: ACM Press  
Full text available: [10.1145/11881](#) Additional Information: [10.1145/11881](#), [10.1145/11882](#), [10.1145/11883](#)

This paper describes the Time Warp Operating System, under development for three years at the Jet Propulsion Laboratory for the Caltech Mark III Hypercube multi-processor. Its primary goal is concurrent execution of large, irregular discrete event simulations at maximum speed. It also supports any other distributed applications that are synchronized by virtual time. The Time Warp Operating System includes a complete implementation of the Time Warp mechanism, and is a substantial d ...

### 12 A hierarchical fair service curve algorithm for link-sharing, real-time, and priority

Ion Stoica, Hui Zhang, T. S. Eugene Ng  
April 2000 **IEEE/ACM Transactions on Networking (TON)**, Volume 8 Issue 2  
Publisher: IEEE Press  
Full text available: [10.1109/1546.8328.2000.8328002](#) Additional Information: [10.1109/1546.8328.2000.8328002](#), [10.1109/1546.8328.2000.8328003](#)

**Keywords:** fairness, link-sharing, packet scheduling, quality of service (QoS), real-time

### 13 A hierarchical fair service curve algorithm for link-sharing, real-time and priority

Ion Stoica, Hui Zhang, T. S. Eugene Ng  
October 1997 **ACM SIGCOMM Computer Communication Review, Proceedings of the ACM SIGCOMM '97 conference on Applications, technologies, architectures, and protocols for computer communication SIGCOMM '97**, Volume 27 Issue 4  
Publisher: ACM Press  
Full text available: [10.1145/263581](#) Additional Information: [10.1145/263581](#), [10.1145/263582](#), [10.1145/263583](#)

In this paper, we study hierarchical resource management models and algorithms that support both link-sharing and guaranteed real-time services with decoupled delay (priority) and bandwidth allocation. We extend the service curve based QoS model, which defines both delay and bandwidth requirements of a class, to include fairness, which is important for the integration of real-time and hierarchical link-sharing services. The resulting Fair Service Curve link-sharing model formalizes the go ...

### 14 Hierarchical packet fair scheduling algorithm

Jon C. R. Bennett, Hui Zhang  
October 1997 **IEEE/ACM Transactions on Networking (TON)**, Volume 5 Issue 5  
Publisher: IEEE Press  
Full text available: [10.1109/1546.8328.1997.8328002](#) Additional Information: [10.1109/1546.8328.1997.8328002](#), [10.1109/1546.8328.1997.8328003](#)

**Keywords:** hierarchical packet scheduling, link-sharing, quality of service, real-time, resource management

### 15 Decoupling QoS control from core routers: a novel bandwidth broker architecture for scalable support of guaranteed services

Zhi-Li Zhang, Zhenhai Duan, Lixin Gao, Yiwel Thomas Hou  
August 2000 **ACM SIGCOMM Computer Communication Review, Proceedings of the conference on Applications, Technologies, Architectures, and Protocols for Computer Communication SIGCOMM '00**, Volume 30 Issue 4  
Publisher: ACM Press  
Full text available: [10.1145/334113](#) Additional Information: [10.1145/334113](#), [10.1145/334114](#), [10.1145/334115](#)

For scalable support of guaranteed services that decouples the QoS control plane from the packet forwarding plane. More specifically, under this architecture, core routers do not maintain any QoS reservation states, whether per-flow or aggregate. Instead, QoS reservation states are stored at and managed by bandwidth broker(s). There are several advantages of such a bandwidth broker architecture. Among others, it relieves core routers of QoS control functions such as admission ...

### 16 How to integrate shared variables in distributed simulation

Horst Menl, Stefan Hammes  
September 1995 **ACM SIGSIM Simulation Digest**, Volume 25 Issue 2  
Publisher: ACM Press  
Full text available: [10.1145/1173581](#) Additional Information: [10.1145/1173581](#), [10.1145/1173582](#), [10.1145/1173583](#)

Although users may want to employ shared variables when they program distributed simulation applications, almost none of the currently existing distributed simulation systems does offer this facility. In this paper, we systematically present new algorithms which provide consistent shared variables for distributed simulation applications. Basically, our approach combines known techniques to realize distributed shared memory with simulation algorithms. As there are essentially two classes of distr ...

**Keywords:** conservative simulation, discrete event simulation, distributed algorithms, distributed shared memory, distributed simulation, optimistic simulation, shared variables

- 17 **Exact GPS simulation with logarithmic complexity, and its application to an optimally fair scheduler**  
 Paolo Valente

August 2004 **ACM SIGCOMM Computer Communication Review, Proceedings of the 2004 conference on Applications, technologies, architectures, and protocols for computer communications SIGCOMM '04**, Volume 34 Issue 4  
 Publisher: ACM Press

Full text available: [PDF](#) Additional information: [DB](#), [Citation](#), [Abstract](#), [References](#), [Cited by](#)

Generalized Processor Sharing (GPS) is a fluid scheduling policy providing perfect fairness. The minimum deviation (lead/lag) with respect to the GPS service achievable by a packet scheduler is one packet size. To the best of our knowledge, the only packet scheduler guaranteeing such minimum deviation is Worst-case Fair Weighted Fair Queuing (WF<sup>2</sup>Q), that requires on-line GPS simulation. Existing algorithms to perform GPS simulation have  $O(n)$  complexity per packet trans.

**Keywords:** computational complexity, data structures, packet scheduling, quality of service

- 18 **Optimistic distributed simulation based on transitive dependency tracking**

Om P. Daman, Yi-Min Wang, May K. Garg

June 1997 **ACM SIGSIM Simulation Digest, Proceedings of the eleventh workshop on Parallel and distributed simulation PADS '97**, Volume 27 Issue 1  
 Publisher: IEEE Computer Society, ACM Press

Full text available: [PDF](#) Additional information: [DB](#), [Citation](#), [Abstract](#), [References](#), [Cited by](#)

[CiteSpace](#), [CiteX](#)

In traditional optimistic distributed simulation protocols, a logical process (LP) receiving a straggler rolls back and sends out anti-messages. The receiver of an anti-message may also roll back and send out more anti-messages. So a single straggler may result in a large number of anti-messages and multiple rollbacks of some LPs. In the authors' protocol, an LP receiving a straggler broadcasts its rollback. On receiving this announcement, other LPs may roll back but they do not announce their ...

**Keywords:** anti-messages, dependency information, distributed recovery, logical process, memory management, message tagging, optimistic distributed simulation, optimistic distributed simulation protocols, process rollback, rollback broadcasting, straggler, time warp simulation, transitive dependency information, transitive dependency tracking

- 19 **A virtual machine simulator for performance evaluation**

M. D. Canon, D. H. Fritz, J. H. Howard, T. D. Howell, M. F. Miloma, J. Rodriguez-Rosel

February 1980 **Communications of the ACM**, Volume 23 Issue 2

Publisher: ACM Press

Full text available: [PDF](#) Additional information: [DB](#), [Citation](#), [Abstract](#), [References](#), [Cited by](#)

**Keywords:** computer system simulation, performance evaluation, virtual machines

- 20 **Performance analysis of Time Warp with homogeneous processors and exponential back-hits**

Anurag Gupta, Ian Akyildiz, Richard M. Fujimoto

April 1991 **ACM SIGMETRICS Performance Evaluation Review, Proceedings of the 1991 ACM SIGMETRICS conference on Measurement and modeling of**

<http://portal.acm.org/results.cfm?coll=ACM&dl=ACM&CFID=22146450&CFTOKEN=54905001>

6/23/2007

**computer systems SIGMETRICS '91**, Volume 19 Issue 1  
 Publisher: ACM Press

Full text available: [PDF](#) Additional information: [DB](#), [Citation](#), [Abstract](#), [References](#), [Cited by](#)

The behavior of a interacting processors synchronized by the "Time Warp" protocol is analyzed using a discrete state continuous time Markov chain model. The performance and dynamics of the processes are analyzed under the following assumptions: exponential task times and times-tamp increments on messages, each event message generates one new message that is sent to a randomly selected process, negligible rollback, state saving, and communication delay, unbounded message buffers, and homogeneous ...

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